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ABSTRACT

This paper describes some lessons learned from the first 2 years of Total Quality Management (TQM) implementation at the Coast Guard Academy (New London, Connecticut). Key issues for TQM adoption at the Academy included leadership, training, organization, total involvement, and measurement. It was found that top management must define the institution's direction and support change. To implement TQM the Guard invested heavily in training 5 percent of its work force. The Academy provided a 3-day training course for 32 senior and middle managers and a 9-day course to 10 facilitators from every division. New organization efforts included formation of a Quality Management Board (QMB) to prioritize and coordinate projects. To lay the groundwork for total involvement the Academy started by implementing TQM first in the service departments and by chartering a study group to recommend a process for adding TQM to cadets' educational and professional development programs. Difficulties were found with measuring change and efforts are continuing to work to improve and simplify quantitative documentation. Early efforts have used surveys and measures of timeliness and dollars saved. A conclusion emphasizes that TQM implementation is a long range project with great potential benefits to the institution and its customers. (JB)

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Implementing TQM in an Academic Setting

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Center for Advanced Studies
United States Coast Guard Academy
New London CT, 06320

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Total Quality Management (TQM) is a philosophy of pursuing continuous improvement in every process through the integrated efforts of all members of the organization. Following the success total quality management in revolutionizing the quality in Japanese industries after World War II, a number of U.S. companies adopted TQM with positive, sometimes spectacular results. Recently, federal and state governments, and colleges and universities have begun exploring and implementing the principles of total quality management. This paper describes some of the lessons learned during the first two years of implementing total quality management at the Coast Guard Academy

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ABSTRACT

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Abstract:
Total Quality Management (TQM) is a philosophy of pursuing continuous improvement in every process through the integrated efforts of all members of the organization. Following the success total quality management in revolutionizing the quality in Japanese industries after World War II, a number of U.S. companies adopted TQM with positive, sometimes spectacular results. Recently, federal and state governments, and colleges and universities have begun exploring and implementing the principles of total quality management. This paper describes some of the lessons learned during the first two years of implementing total quality management at the Coast Guard Academy.

Implementing TQM in an Academic Setting

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Introduction

In 1990, the Coast Guard, along with many other federal government agencies, officially embarked on a course to implement Total Quality Management (TQM). At a time of constant, sometimes diminishing resources, the Commandant wanted to change the culture of the Coast Guard to improve efficiency and best utilize scarce resources.

The Coast Guard Academy, a four year undergraduate institution and the Coast Guard's only college, thus began a journey toward quality with the rest of the Coast Guard. While it was advantageous to have a large network within the organization involved with TQM, it was obvious from the start that implementation in an academic setting posed unique challenges and opportunities.

Background

The principles of TQM, developed in the 1950's, are primarily credited to Dr. W. Edwards Deming of the United States. The application of Deming's work in Japanese industries transformed them through a quality revolution. In the 1980's a number of U.S. companies, both large and small, adopted TQM with positive, sometimes spectacular results. In the past few years, federal and state governments have been using TQM and a number of colleges and universities have begun to teach and apply the principles of TQM.

All organizations can benefit from the application of TQM principles. TQM gives organizations a way to improve and to get more competitive. For those organizations that are already at the top, it provides the methods to stay there.

Key Issues

As defined by the Coast Guard, Total Quality Management is "a philosophy of pursuing continuous improvement in every process through the integrated efforts of all members of the organization." It includes streamlining work processes to make them as simple as possible, orienting work toward customer satisfaction, solving problems at the working level and providing high level support for change and continuous improvement.

During the process of implementing TQM at the Coast Guard Academy, we found that several ingredients are necessary for its successful adoption. These elements are: (1) Leadership; (2) Training; (3) Organization; (4) Total Involvement; and (5) Measurement.

Leadership

It is imperative that top management define where it is that the institution is going. Only then can a coordinated effort be made by all organizational elements in developing plans for how to get there. Once this is accomplished, leaders must be receptive to and supportive of change.

To paraphrase Dr. Joseph M. Juran, no TQM program can be successfully implemented without the commitment of top management.[1] In fact, someone in top management must be a "champion" of TQM. At the Coast Guard Academy, the Superintendent demonstrated leadership by personally writing a Vision Statement for the Academy and the top-level managers formed a team to develop a strategic plan that defined goals and objectives for the Academy. Prior to this, our Dean had developed a set of eleven Academic Outcomes that described the qualities we would like to see in our graduates. He felt that the development of shared outcomes was a critical first step in the achievement of unity of purpose for the academic curriculum.[2] The overall goals and objectives for the Academy were generally patterned after these Academic Outcomes.

Training

The Coast Guard approach to implementing TQM was to invest heavily in training a core of people during the first year, about 5% of the work force, using an outside consultant. We then used this core of people to train the entire work force. The opportunity to train together is very important. Many of our first process improvement projects were spawned by ideas generated in these initial training sessions. We also found it helpful, but not essential, to train on site.

At the Academy, we provided a 3-day training course for thirty two senior and middle managers and a 9-day course to a group of ten facilitators. The facilitators represented each major division at the Academy. They became a group of "advocates" that was vital to early progress and contributed greatly to the success of our first Quality Action Teams. The facilitators conducted awareness training for all Academy personnel and continue to provide more in depth training for individuals assigned to work on Quality Action Teams.

Organization

Reorganization is not necessary to implement TQM. Quality is not a new program; it should be part of every existing program. Although some new groups may need to be created, maximum advantage of existing natural groups should be taken. For example, the Academy's normal policymaking group consists of the Superintendent and five senior managers. Early in the implementation process, we attempted to broaden the policymaking group into an Executive Steering Committee (ESC) without success. The Superintendent and five senior managers already had a normal policymaking relationship which worked very well. Ultimately, we returned to that natural group to form our Executive Steering Committee.

We did form a Quality Management Board (QMB) with broad representation (12 senior/middle managers from each major division) to prioritize and coordinate projects that span the control of several divisions. Each division and some departments also have QMBs made up of their managers. In most cases, we found that these groups already existed. For example, in the Academic Division, the Academic Council was already in place, consisting of department heads, the head librarian and registrar, and led by the Dean. Quality just had to become part of their agenda.

The ESC and QMBs are linked vertically in the organization by some common members. They provide cross-functional representation at a variety of organizational levels. The QMBs can formally charter Quality Action Teams (QATs) to work on process improvements within their scope of responsibility. These QATs are also cross-functional in their makeup.

Total Involvement

The ultimate success of TQM rests on the involvement of the entire work force. Top management must lead; middle management must support and provide resources; the work force must do the work. Formally chartered QATs are used for processes which span the control of several divisions. These teams typically have 6-10 members, a team leader and a facilitator. When we started implementing TQM principles at the Coast Guard Academy, we looked for some areas where we felt we could be successful and obtain fairly quick results. Like most colleges that have implemented TQM, we found these in service areas. Our first four teams worked on improving: (1) orientation of new personnel; (2) facilities work orders; (3) incoming telephone service; and (4) textbook ordering. Each had very positive results. This was important because everyone involved was inspired to make further progress. We have started three new projects also in service areas, and we have just chartered a study group to recommend a process for adding TQM to the cadets' educational and professional development programs.

Within the Academic Division, we utilized TQM methods with a study group to set up a new Mechanical Engineering degree program. The teamwork and improved communications between different departments helped speed up and smooth out the overall process. We have also set up a team within the Department of Engineering to improve the process of preparing our students to take the Fundamentals of Engineering examination. This examination may become an important program assessment tool for determining future improvements.

While QATs will accomplish process improvement on a large scale, perhaps the most fertile ground for improvement is with Natural Working Groups. These are small groups that normally work together. As an example, our Naval Architecture and Marine Engineering Section, consisting of 9 faculty members and 2 technicians is a natural working group. Working as a team, they have utilized TQM principles to improve our freshman engineering design course.[3] This has led to continuous improvement of a course that enhances creativity, promotes teamwork, and attracts students to our engineering majors.

Measurement

The ability to measure where we are and what has changed is critical to the success of TQM. You can't manage what you can't measure. Usually this is one of the last items to be developed because it is difficult, but it can't be ignored. To be honest, we have a long way to go at the Coast Guard Academy in this area. We have used surveys and measures of timeliness and dollars saved. For example, our telephone QAT improved the success rate for reaching the desired party from less that 50% to more than 95% by reprogramming the existing system at a nominal cost. The text book ordering QAT improved the on time submittal of book orders from faculty from 30% to 77% over three semesters and initiated a used book buy back program that returned over $40,000 to the cadets in the Spring 1992 semester alone.

Ultimately, the measures of effectiveness must be tied to the institutional goals and objectives. These measures should be kept as simple as possible with the philosophy that the benefit of measuring should outweigh the cost of measuring.

Conclusions

After working with TQM for over two years, Deming's first point about creating "constancy of purpose" becomes quite clear.[4] Implementing TQM is not a short journey. In fact, continuous improvement implies a long range outlook. But while there are many hurdles along the way, the opportunities for improvement by teamwork are great.

The development of consistent, long-range goals and objectives allows all elements of the organization--academics, athletics, facilities, etc.--to see how they contribute and permits them to mutually adjust their efforts in a way that benefits the overall institution. While many of the early successes have been in the service areas, excellent opportunities exist to improve the way we teach and to coordinate the development of the curriculum. The customer-supplier relationship between students and faculty can be used very effectively to enhance the quality of instruction. For example, we recently instituted a midterm course evaluation for several courses so that the

feedback received from the students could be used by the instructor to improve the course for those students over the remainder of the term.

If the students are viewed as our customers, we owe them a Quality program so that they graduate with both the technical skills and the teamwork skills needed when they enter the work force. Students need to do more than just study about TQM. They need to see it in action, and they need to practice it. Ideally they will gain an educational philosophy of continuous improvement. By encouraging the involvement of our customers, the students, in the improvement of the educational process, we can make sure that changes are made that truly improve the education provided by the institution.

References

(1) Berry, Thomas H., Managing the Total Quality Transformation, New York : McGraw-Hill, 1990.

(2) Sanders, William A., Educating Coast Guard Officers, New London: CGA Center for Advanced Studies, 1992.

(3) Wilczynski, V., D.K. Oliver and S.E.Carlson, Incorporating Total Quality Management in an Engineering Design Course, ASEE Annual Conference Proceedings, 1993.

(4) Walton, Mary, The Deming Management Method, New York: Putnam Publishing, 1988.